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EFFECTS OF CONSTRUCTION AND STAGED FILLING
OF RESERVOIRS ON THE ENVIRONMENT AND ECOLOGY

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Type II Progress Report for the period 8 June 1972 - 8 December 1972

TITLE: Effect of Construction and Staged Filling of Reservoirs
on the Environment and Ecology MMC #341

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OBJECTIVE

To study the environmental and ecological impact of the construction and operation of Oakley Dam and Friends Creek Impoundment located on the Sangamon River in East Central Illinois.

PREFACE

There was some delay in commencing the work due to contract negotiations with the University of Illinois at Urbana-Champaign. All parties involved in the research effort have accelerated their activities in an attempt to compensate for the delayed commencement of the contracts.

REPORT

During the time period from June 8 to October 26, 1972, the Construction Engineering Research Laboratory (CERL) was negotiating with the University of Illinois at Urbana-Champaign for two contracts concerning services and facilities regarding the project. On November 8, 1972, a contract was awarded to the University of Illinois for assistance in the analysis of the ERTS-1 imagery, under the direction of Dr. H. M. Karara, Professor of Civil Engineering. "Ground truth" is presently being collected by the University of Illinois under the contract titled "Oakley-Sangamon Environmental Research Program", (OSERP) directed by Dr. W. R. Boggess, Head of the Department of Forestry, and Dr. R. J. Miller, Associate Director of the Illinois Agricultural Experimental Station. The OSERP contract is a continuation of a contract which commenced in September 1971, it is not financed by NASA funds.

The first ERTS-1 imagery of the study area was received on October 5, 1972, it was taken on the orbit data August 9, 1972. Subsequent imagery of the study area has been received for the following orbit dates: October 1, 2, 19, and 20, 1972.

On November 14, 1972, all of the products listed as being in the investigator's profile, for the orbit date August 9, were requested by telephone from the NDPF, none have been received as of this date.

In the future, digital data may be requested for analysis.

The first NASA underflight aircraft imagery was received on September 22, 1972, for coverage taken on August 16, 1972. One product had to be backordered, this was received on December 6, 1972.

Several meetings and field trips have been conducted with University of Illinois personnel involved with the project.

The personnel involved in the image analysis have completed their Phase I - Data Analysis Preparation and have commenced Phase II - Preliminary Data Analysis. Some preliminary base mapping has been completed.

Personnel involved in the collection of ground truth data under the OSERP contract are coordinating their data collection activities for the following three parameters, water quality, surface conditions and ground-water to coincide with orbit dates for the study area.

Four (4) general areas have been established for the collection of upland and floodplain vegetation data. There was a delay in receiving permission to conduct studies in some of these locales.

Five (5) microclimate stations have been established and two (2) more stations will be established by January 1973, these stations utilize automatic recording instrumentation.

Flood-plain silt accumulation sampling stations are presently being established to determine soil erosion or deposition. These stations should be completed by January 1973.

Groundwater piezometers are presently being established, they should all be positioned for recording data by February 1973, depending on frozen soil and flooding conditions.

Insect and animal inventories were commenced last summer. Data is presently being analyzed and inventories are still being conducted on those species where conditions permit.

A water quality program was established under the OSERP contract in September 1972. Samples are collected from a total of thirteen (13) sites and analyzed.

An attempt will be made to develop relevant correlations between applicable ground truth data and ERTS-1 imagery during the construction and operation of the Oakley-Sangamon project. Hopefully, such correlations

will allow planners to predict, with reasonable accuracy and minimal expense, the post-project environmental changes that will occur in areas having a similar pre-project environment.

The project is progressing as planned except for the initial delay caused by contract negotiations. Future delays may be caused by the large number of overcast days that have occurred in the study area this fall hindering the ERTS-1 and "ground truth" operations.

